4th Industry Revolution: The Petrochemical Industry

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
SDG 13: Take urgent action to combat climate change and its impacts
SDG 14: Conserve and sustainably use the oceans, sea and marine resources for sustainable development

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During the last 100 years, the petrochemical industry had to reinvent multiple times in order to make sure it would stay relevant for customers, markets and society. The industry has developed products which allowed end markets to be more competitive, to reduce weight, to save energy and to make sure that there is less food waste and the shelf-life of food was extended in a safe and correct manner. Plastics, for instance, form a major part of the petrochemical production and have become essential components of a whole range of products and packaging because they're durable, lightweight, and cheap. But though they offer numerous benefits, plastics and other petrochemical products originate from fossil fuels and emit greenhouse gases from cradle to grave.

The petrochemical industry produces products which you find in many end user applications such as:
- Food packaging,
- Solar panels and windmills,
- Hand gel, beauty care, protective masks,
- Coatings and adhesives,
- Building and construction products,
- Consumer appliances such as isolation products, sports shoes and textiles – non-woven,
- Automotive.

The industry has now entered into the 4th industrial revolution where it needs to address new challenges. How to continue to make above products without CO_2, as well as make them circular? Plastic waste is a major issue for society and the ecosystem and in the industry view, plastic is too valuable to end up in nature! Plastic pollution is not just an oceans issue, it's a climate issue, it's a human health issue, it's a business issue.

The industry focuses on various aspect to address the plastic challenge:
- Design products for recycling, so that after use by the consumer, the industry can easily bring them back into either mechanical recycling or feedstock recycling;
- Mechanical recycling;

- Feedstock recycling, this is a process where the industry converts plastic waste via pyrolysis, gasification or other technologies back into oil/feedstock. From this oil the industry produces polymers for food packaging like virgin plastics.

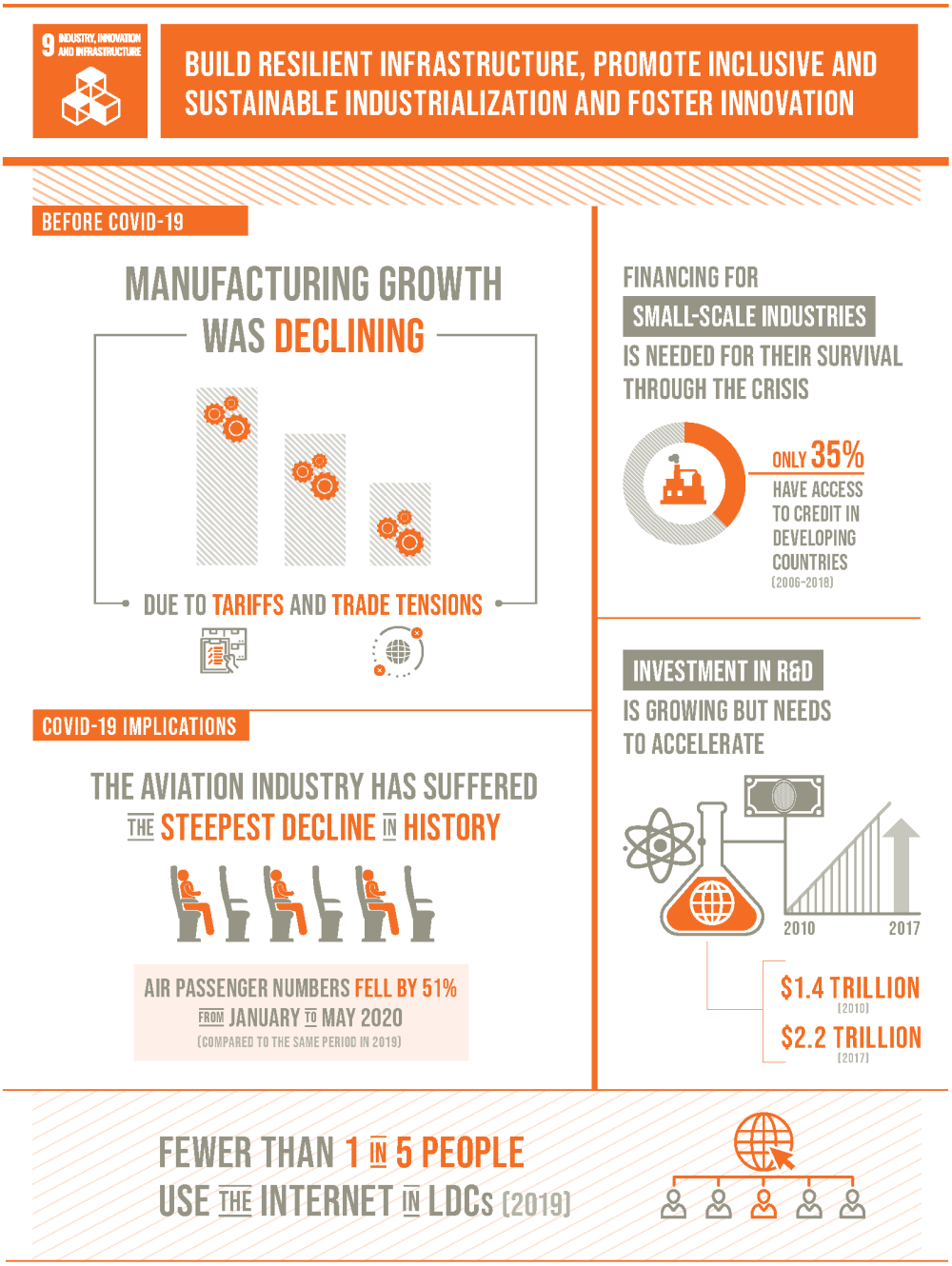
As you can imagine the cost of the energy transition (CO_2 reduction and circular) is significant. The upfront investment in R&D, new assets and higher operation cost are significant as well. Therefore, all the alternatives to make products carbon neutral and circular are – certainly at the moment – significantly more expensive. How to overcome this challenge in such a way that both industry and consumers can keep up?

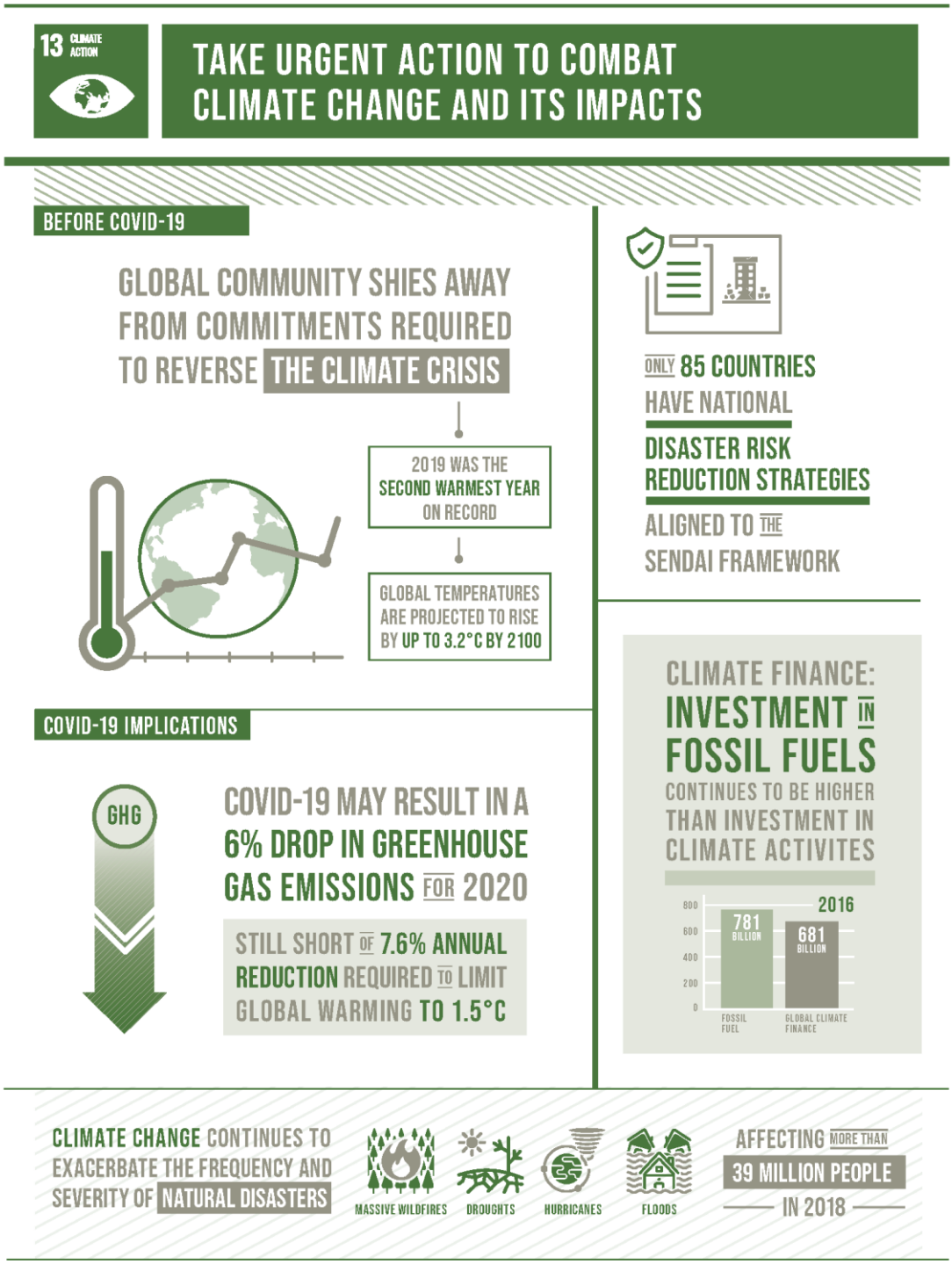
Your Challenge

What can your company do to support this industrial revolution that will transform the petrochemical industry once again to make it more sustainable? Realistically consider how much more consumers and companies are willing to pay for alternatives with lower CO_2 and from a circular manufacturing process. Keep in mind the endless amount of applications currently being offered by the petrochemical industry: the scale is enormous, and so could the impact be. Work on a solution (product, service or other) that your company could deliver, build the business case and prove that it will work, with impact!

SDG 9, 13 and 14 at a Glance…

Be sure to explore these goals further!
Further resources to get started: *SDG 9* | *SDG 13* | *SDG 14*



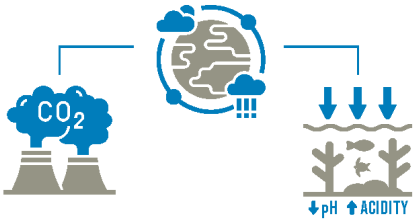

13 CLIMATE ACTION
TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS
BEFORE COVID-19
GLOBAL COMMUNITY SHIES AWAY FROM COMMITMENTS REQUIRED TO REVERSE THE CLIMATE CRISIS
2019 WAS THE SECOND WARMEST YEAR ON RECORD
GLOBAL TEMPERATURES ARE PROJECTED TO RISE BY UP TO 3.2°C BY 2100
ONLY 85 COUNTRIES HAVE NATIONAL DISASTER RISK REDUCTION STRATEGIES ALIGNED TO THE SENDAI FRAMEWORK
COVID-19 IMPLICATIONS
GHG
COVID-19 MAY RESULT IN A 6% DROP IN GREENHOUSE GAS EMISSIONS FOR 2020
STILL SHORT OF 7.6% ANNUAL REDUCTION REQUIRED TO LIMIT GLOBAL WARMING TO 1.5°C
CLIMATE FINANCE: INVESTMENT IN FOSSIL FUELS CONTINUES TO BE HIGHER THAN INVESTMENT IN CLIMATE ACTIVITES
2016
800
600
400
200
0
781 BILLION
681 BILLION
FOSSIL FUEL
GLOBAL CLIMATE FINANCE
CLIMATE CHANGE CONTINUES TO EXACERBATE THE FREQUENCY AND SEVERITY OF NATURAL DISASTERS
MASSIVE WILDFIRES
DROUGHTS
HURRICANES
FLOODS
AFFECTING MORE THAN 39 MILLION PEOPLE IN 2018

AmCham
THE NETHERLANDS

CONSERVE AND SUSTAINABLY USE THE OCEANS, SEA AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

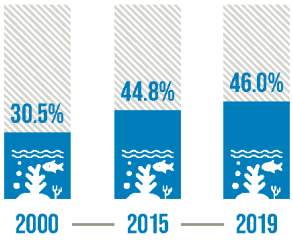
BEFORE COVID-19

OCEAN ACIDIFICATION CONTINUES TO THREATEN MARINE ENVIRONMENTS AND ECOSYSTEM SERVICES



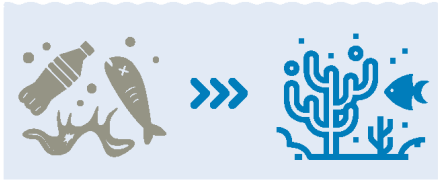
A 100–150% RISE
IN OCEAN ACIDITY IS PROJECTED BY 2100, AFFECTING HALF OF ALL MARINE LIFE

GLOBAL MARINE KEY BIODIVERSITY AREAS COVERED BY PROTECTED AREAS INCREASED

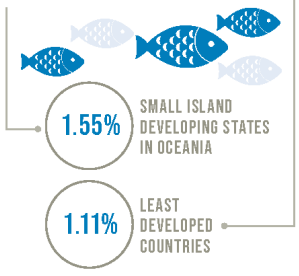


COVID-19 IMPLICATIONS

THE DRASTIC REDUCTION IN HUMAN ACTIVITY BROUGHT ABOUT BY COVID-19 MAY BE A CHANCE FOR OCEANS TO RECUPERATE



SUSTAINABLE FISHERIES CONTRIBUTE TO GDP



10X THE GLOBAL AVERAGE

97 COUNTRIES SIGNED THE AGREEMENT ON PORT STATE MEASURES, THE FIRST BINDING INTERNATIONAL AGREEMENT ON ILLEGAL, UNREPORTED AND UNREGULATED FISHING